

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and the following remarks.

I. Status of the Claims

Claims 1-22 and 33-42 are currently pending in the application, with claims 1 and 10 being the independent claims. Claims 23-32 were previously canceled.

Claim 36 is amended to correct a typographical error. Support for the amendment to claim 36 may be found in Figure 7 and in paragraph [0052] of the published application (Publication No. U.S. 2005/0026221).

II. The Objection to the Claims

The Office Action, at page 2, objects to claim 36 for reciting an offset distance between the distal end of the hollow pin and the base of the sample container in a range “between about 0.1 mm and about 40 mm”, rather than “between about 0.1 mm and about 0.4 mm”.

Claim 36 is amended to recite the correct offset distance range. The objection is therefore moot.

III. The Rejections Under 35 U.S.C. § 103(a)

A. The Rejection Over Magnuson in view of Bullen

The Office Action, at pages 2-5, rejects claims 1-2, 5-6, 18-19 and 36-37 under 35 U.S.C. § 103(a) as allegedly being unpatentable over US Patent Application Publication No. 2003/0179916 A1 to Magnuson et al. (“Magnuson”) in view of US Patent Application Publication No. 2003/0132109 A1 to Bullen et al. (“Bullen”). Applicants respectfully traverse this ground of rejection.

1. Summary of the Claimed Invention

The claimed invention is directed to a method for automated picking of animal cell colonies. The method employs a picking head comprising at least *one hollow pin that has an inside diameter suitable to pick animal cell colonies that are smaller in size than the inside diameter of the hollow pin*. The method comprises: (1) aligning the picking head with the sample container where the animal cell colonies are grown, (2) picking an animal cell colony by aligning the hollow pin with the animal cell colony location, (3) moving the hollow pin to a colony picking position in which a distal end of the hollow pin is immersed in the medium over the animal cell colony and aspirating the animal cell colony into the hollow pin while the distal end of the hollow pin is held in the colony picking position; and dispensing the picked animal cell colony into the dispensing container.

2. The Cited Reference Fails to Teach Each and Every Element of the Claimed Invention

Magnuson discloses a method for the automated isolation of a cell colony, wherein a cell colony is aspirated off the growth surface and makes contact with the end of the capillary pipette where a seal is formed between the tip of the capillary pipette and the cell colony (*see* paragraph [0127]). The method disclosed by Magnuson comprises the use of a capillary pipette that has a diameter (0.2 mm) *that is smaller than the cell colony size* (*see* paragraphs [0170] and [0172]). Accordingly, Magnuson fails to teach or suggest a hollow pin with an inside diameter that is greater than the size of the animal cell colonies, as required by the claimed invention.

Furthermore, Magnuson teaches away from the claimed invention, as the reference discloses that pipettes with a diameter of 0.4 mm are unsuitable for picking cell colonies, since a good seal cannot be maintained between the edge of the capillary pipette and the cell colony, and consequently a large amount of medium is aspirated instead of the cell colony (*see* paragraph [0172]). Accordingly, Magnuson fails to disclose or suggest the claimed invention.

The secondary reference, Bullen, does not remedy the deficiencies of Magnuson. Bullen discloses using a bubble pipette in combination with a guard assembly that extends axially beyond the extent of the bubble pipette (*see* paragraph [0037] and Figure 3). The bubble pipette has a bubble diameter of 25 microns or less (*i.e.* 0.025 mm) (*see* paragraph [0032]). The bubble also includes an aperture that is typically between 0.5 and 3 microns (*i.e.* 0.0005 to 0.003 mm) and substantially smaller than a cell (*see* paragraph [0035]). The assembly is placed into a cell population and the bubble of the bubble pipette is brought into contact with a cell such that a seal is formed between the cell and the bubble pipette. This is done by introducing a negative pressure within the bubble pipette such that a cell will make contact with the bubble at the aperture location (*see* paragraphs [0015] and [0046]).

Bullen fails to disclose or suggest *a method for automated picking of animal cell colonies*, as required by the claimed invention. Contrary to the Office's allegation, that "*Bullen discloses a hollow pin pipette to select a desired cell colony from a well*" (Office Action at page 4), Bullen only discloses a method to adhere one cell from a population of single cells to the bubble of the bubble pipette. In fact, the aperture used to contact the cell is stated to be substantially smaller than a cell (*see* paragraph [0035]). This type of contact would not be suitable for picking a cell colony, since the aperture in the bubble and the diameter of the bubble of the pipette are small and specifically designed for contacting single cells. As shown by Bullen (*see* Figure 8), a population of single cells is very different from a cell colony. Unlike a single cell, a cell colony does not have a continuous surface that would make contact with the end of the bubble pipette. Therefore, if the aperture disclosed by Bullen was increased for picking cell colonies, the cell colony would be disrupted and break into pieces, as cells within the cell colony would be aspirated through the aperture in the bubble pipette, and this would lead to the breaking up of the cell colony. Bubble pipettes are therefore unsuitable for picking colonies.

Nowhere does Bullen disclose a method for automated picking of animal cell colonies, as claimed in the present application. Thus, Bullen, like Magnuson, fails to teach or suggest the claimed invention.

3. There is no Reason to Combine the Known Elements in the Fashion Claimed

The Office Action contends that it would have been obvious for one of ordinary skill in the art, in view of the teachings of Bullen, to increase the size of the diameter of the hollow pin disclosed by Magnuson, because “*although a larger hollow tube diameter would make it harder to produce a seal upon contact with the cell colonies, the increased size would be beneficial because it would allow one to aspirate greater cell quantities at the time, thus improving the efficiency of collection*” (Office Action at page 4).

The person of ordinary skill in the art, however, would **not** be motivated to increase the diameter of the pipette disclosed by Magnuson, since, as stated above, Magnuson teaches that increasing the diameter to 0.4 mm prevents the formation of a good seal between the pipette and the colony, and a large volume of medium is aspirated instead of the cell colonies. Since the typical size of a cell colony disclosed by Magnuson is 0.7-1.2 mm (*see* paragraph [0190]), the person of ordinary skill in the art would not go directly against the teaching of Magnuson and increase the diameter of the capillary pipette, as wrongly alleged in the Office Action.

Furthermore, the artisan skilled in the art would never apply the method disclosed by Bullen to the picking of cell colonies, because, as stated above, such a method would cause the disruption of the cell colonies, resulting in their death. Thus, the Office’s allegation of obviousness is impermissible.

For at least these reasons, the rejection of claims 1-2, 5-6, 18-19 and 36-37 under 35 U.S.C. § 103(a) is improper. Reconsideration and withdrawal of this ground of rejection are therefore respectfully requested.

B. The Rejection Over Magnuson in view of Bullen and Further in view of Bienert

The Office Action, at pages 5-6, rejects claim 3 under 35 U.S.C. § 103(a) as allegedly being unpatentable over US Patent Application Publication No. 2003/0179916 A1 to Magnuson et al. (“Magnuson”) in view of US Patent Application Publication No.

2003/0132109 A1 to Bullen et al. ("Bullen") and further in view of US Patent Application Publication No. 2001/0019845 A1 to Bienert et al. ("Bienert"). Applicants respectfully traverse this ground of rejection.

The failure of Magnuson and Bullen to teach or suggest the invention of claims 1-2, 5-6, 18-19 and 36-37 are demonstrated above. The additional reference, Bienert, does not remedy the deficiencies of Magnuson and Bullen. Rather, Bienert discloses a freely traversable metering head with numerous metering devices. Bienert fails to disclose or suggest a method for picking animal cell colonies, as claimed in the application. The rejection is therefore improper and its withdrawal is respectfully requested.

C. The Rejection Over Magnuson in view of Bullen and Further in view of Sogi

The Office Action, at pages 6-8, rejects claim 4 under 35 U.S.C. § 103(a) as being allegedly unpatentable over US Patent Application Publication No. 2003/0179916 A1 to Magnuson et al. ("Magnuson") in view of US Patent Application Publication No. 2003/0132109 A1 to Bullen et al. ("Bullen") and further in view of U.S. Patent No. 4,210,724 ("Sogi"). Applicants respectfully traverse this ground of rejection.

The deficiencies of Magnuson and Bullen to teach or suggest the invention of claims 1-2, 5-6, 18-19 and 36-37 are demonstrated above. The additional reference, Sogi, does not remedy the deficiencies of Magnuson and Bullen. Sogi is directed to an apparatus for liquid disposal and distribution for use in an automatic culture and fails to disclose or suggest a method for picking animal cell colonies, as claimed.

Reconsideration and withdrawal of this ground of rejection are therefore respectfully requested.

D. The Rejection Over Magnuson in view of Bullen and Further in view of Pareck

The Office Action, at pages 8-11, rejects claims 4, 7-9 and 17 under 35 U.S.C. § 103(a) as allegedly being unpatentable over US Patent Application Publication No.

2003/0179916 A1 to Magnuson et al. ("Magnuson") in view of US Patent Application Publication No. 2003/0132109 A1 to Bullen et al. ("Bullen") and further in view of US Patent No. 6,064,754 to Parekh et al. ("Parekh"). Applicants respectfully traverse this ground of rejection.

The inadequacies of Magnuson and Bullen in teaching or suggesting the claimed invention are demonstrated above. The additional reference, Pareck, does not remedy the deficiencies of Magnuson and Bullen. Pareck is drawn to computer-assisted methods and apparatus for identifying, selecting and characterizing biomolecules in a biological sample. The reference fails to teach or suggest the picking method claimed in the present application. Accordingly, the rejection is improper and its withdrawal is respectfully requested.

IV. Allowable Subject Matter

Applicants wish to thank Examiner Bowers for indicating that claims 10-16, 20-22, 33-35 and 38-42 are allowed.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed or rendered moot. Thus, the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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